

REMARKS

Claims 1-37 are pending and at issue in this application. Claims 3 and 30 are indicated to be allowable, but are objected to for being dependent on a rejected base claim. Claims 3 and 30 are amended hereby to be in independent form, including the limitations of their base claims and any original intervening claims. Applicants therefore submit that claims 3 and 30 are now in condition for allowance. The fee for the submission of two additional independent claims is included herewith.

Applicants respectfully traverse the rejection of claim 16 under 35 U.S.C. § 112, second paragraph as indefinite. Although applicants submit that the original language of claim 16 is clear, claim 16 is amended to clearly indicate that one of the plurality of reporting regulators (recited by independent claim 12) is adapted to control functions of another one of the plurality of reporting regulators. As a result, applicants submit that claim 16 is clear in meaning and that all terms thereof have proper antecedent basis, and respectfully request withdrawal of the rejection of claim 16. Applicants submit that this amendment does not limit this claim in any manner, but merely rephrases the claim to clarify its intended meaning.

Applicants respectfully traverse the rejection of claims 1, 4-7, and 27 as anticipated by Cunningham (U.S. Patent No. 6,124,806) and the rejection of claims 8-15, 17-29, and 31-37 as obvious over Cunningham. As currently amended, each of claims 1, 4-7 and 27 recites a reporting module or a communication device provided on a regulator device, e.g., a device that controls fluid or gas pressure, which reports sensor or other data from the regulator device to a second device, such as a receiver or a central computer. Cunningham does not disclose a regulator device of any kind, much less a reporting regulator having a reporting module or other communication device associated therewith. Thus, while Cunningham discloses a system for collecting sensor data by attaching sensor interface modules to sensor

devices already installed in a facility, Cunningham does not disclose the use of reporting or communication modules on regulator devices already installed in the system. Thus, while Cunningham discloses a gas meter device in which a sensor interface module is adapted to transmit the readings of a mechanical dial of the meter to a data collection computer, this gas meter is not a regulator.

Furthermore, and contrary to the examiner's assertion, a pressure regulator is not a conventional part of a gas meter, nor does Cunningham provide any support for this proposition. Unlike regulators, gas meters do not control fluid pressure. In fact, gas meters are designed to measure a fluid characteristic without affecting the characteristic it is measuring. Thus, it is not necessary or even desirable to use a regulator device within a gas meter. In any event, it is clear that Cunningham fails to disclose a gas meter having a regulator device therein. For example, only the outer casing of the gas meter illustrated in Fig. 4 of Cunningham is shown. As a result, this figure does not support the examiner's contention that the Cunningham gas meter includes a regulator device. Likewise, and contrary to the examiner's assertion, while Fig. 9 of Cunningham illustrates the functionality of a gas meter device, this figure specifically fails to depict a regulator device of any sort therein. Instead, Fig. 9 of Cunningham illustrates a pressure differential meter 600, a pressure meter 602 and a temperature meter 604, none of which are fluid regulating devices, e.g., devices which control or regulate the flow of fluid within the system. Thus, the examiner's assertion that a reporting regulator is a conventional part of a gas meter is unsupported by the cited prior art.

Because Cunningham fails to disclose a regulator device of any kind, much less a regulator having a reporting module or other communication device thereon, it follows that Cunningham can not anticipate any of claims 1, 4-7 or 27.

Still further, Cunningham fails to provide any motivation or suggestion for placing a reporting module or other communication device on a fluid regulator device, as recited by each of claims 8-15, 17-29 and 31-37. As a result, Cunningham can not render any of these claims obvious.

Generally speaking, regulator devices are mechanical devices that are designed to adjust fluid pressure, and therefore to control fluid flow, based on, for example, one or more fluid pressures within the system. Regulator devices are typically placed in remote locations of a fluid distribution system where user intervention and interaction is unnecessary. Because regulators are generally designed to be self-contained, self-adjusting units, providing sensor data to a regulator is contrary to the general functionality of the regulator and is certainly not suggested by the prior art. Also, while a regulator may use feedback, e.g., from an immediate upstream or downstream location, this feedback is usually in the form of fluid feedback, and thus, regulators do not typically need sensor measurements or sensor readings to operate properly. As a result, fluid regulator devices, such as those used in gas transportation systems, do not generally receive sensor measurements or sensor data, and generally do not report or deliver any information to a central computer or other receiver. Therefore, the use of sensor data in a regulator is non-conventional and the reporting of sensor or other data from a regulator device is also non-conventional.

In fact, it is the inventors of the current application who first recognized that regulators may be useful in coordinating the collection of sensor data within a fluid transportation system (such as a gas transportation system) to aid in the processing and understanding of the collected sensor data, despite the fact that regulators typically do not need sensor measurements and are typically not communicatively connected to a centralized controller or database. Thus, it is the inventors of the current application who first

recognized the benefits of providing sensor data to a regulator and then reporting that sensor data or data developed from the sensor data to other receivers, such as a centralized database. These benefits include reducing the number of communication connections to the receiver (as a regulator can report multiple sensor measurements), marking the sensor data with a location and time associated with the regulator, which groups sensors with particular regulators, etc.

Certainly, none of the cited art recognizes these benefits or provides any motivation for using regulators as sensor data collection and distribution devices. In fact, Cunningham discloses that it is desirable to send sensor data from the sensors themselves, not to send the sensor data to an associated control device, such as a regulator, and to then send the sensor data to a centralized or common database. Still further, as noted above, Cunningham is not concerned with a distribution system that uses regulators, and therefore cannot provide any motivation for using a regulator device as a sensor data collection and distribution device. In any event, Cunningham fails to provide any reason or rational as to why a regulator device would ever be modified to receive sensor data of any kind or to transmit this data to other receivers.

It is clear that the prior art must make a suggestion of or provide an incentive for a claimed combination of elements to establish a *prima facie* case of obviousness. *See, In re Oetiker*, 24 U.S.P.Q.2d 1443, 1446 (Fed. Cir. 1992); *Ex parte Clapp*, 227 U.S.P.Q. 972, 973 (Bd. Pat. App. 1985). This principle holds true even if the applied art could be modified to produce the invention recited by the pending claims. *See, In re Mills*, 16 U.S.P.Q.2d 1430, 1432 (Fed. Cir. 1990); *In re Gordon*, 221 U.S.P.Q. 1125, 1127 (Fed. Cir. 1984) ("The mere fact that the prior art could be so modified would not have made the modification obvious unless the prior art suggested the desirability of the modification.") Because neither the prior art in general, nor Cunningham in particular, provides any disclosure or motivation for using

a regulator device as a sensor signal receiving and re-transmitting device, as recited by each of claims 8-15, 17-29 and 31-37, it follows that neither the prior art in general nor Cunningham in particular can render any of claims 8-15, 17-29 or 31-37 obvious.

Additionally, applicants respectfully traverse the rejection of claims 8-11 as obvious over Cunningham, for the further reason that each of claims 8-11 recites a reporting regulator having a processor adapted to receive sensor data and to control a fluid throttling element in response to the sensor data. Contrary to the examiner's contention, Cunningham simply fails to disclose or teach the use of a regulator, or a processor disposed on a regulator to control the throttling element of the regulator, much less a processor disposed on a regulator to control a throttling element of the regulator in response to sensor data. For this additional reason, Cunningham cannot render any of claims 8-11 obvious.

Likewise, applicants additionally traverse the rejection of claims 23-26 as obvious over Cunningham for the additional reason that each of claims 23-26 recites controlling at least one pressure within a gas transportation system utilizing received sensor data. Because Cunningham does not disclose or suggest, in any manner, controlling any fluid characteristic based on its sensor readings, Cunningham cannot render any of claims 23-26 obvious.

**CONCLUSION**

For the foregoing reasons, applicants respectfully request reconsideration and withdrawal of the rejections and allowance of claims 1 and 3-37. If there are matters that can be discussed by telephone to further the prosecution of this application, applicants respectfully request that the examiner call its attorney at the number listed below.

Respectfully submitted,

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